CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.08/KRSK/CSR-06/076g/CEMENT/2016-17 Date: 29.06.2016

TEST REPORT ON CEMENT

* CUSTOMER	:	**Asst. Executive Engineer**, Kodigehalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
*NAME OF THE WORK	:	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
*REFERENCE	:	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	27.06.2016
PERIOD OF TESTING	:	27.06.2016 to 29.06.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	30.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	150 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	475 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

AE-B

Note:

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****

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T-2377

Job No.: CTCE/BBMP/W.No.08/KRSK/CSR-06/076g/SAND-Gradation/2016-17 : 29.06.2016

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. K.R. Santhosh Kumar,**
#04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.

*** Name of Work** : Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates

Sample Received on : 27.06.2016

Date of Testing : 29.06.2016

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	94.00	90-100	90-100	90-100	95-100
2.36	76.00	60-95	75-100	85-100	95-100
1.18	53.50	30-70	55-90	75-100	90-100
600 Micron	24.00	15-34	35-59	60-79	80-100
300 Micron	13.50	5-20	8-30	12-40	15-50
150 Micron	7.00	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMP/W.No.08/KRSK/CSR-06/076g/AGG/GR/2016-17 : 29.06.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

* Customer	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
* Agency	: **Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
* Name of Work	: Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Technical Reference	: IS : 2386 Part 1 -1963 RA-2007
Sample ID	: Coarse Aggregates (40mm)
Sample Received on	: 27.06.2016
Date of Testing	: 29.06.2016

Total Wt. of Aggregates in gms= **7000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	97.14	95-100	85-100
20	47.14	30-70	0-20
10	25.71	10-35	0-5
4.75	3.07	0-5	-

AE-8

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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T-2377

Job No.: CTCE/BBMP/W.No.08/KRSK/CSR-06/076g/AGG/GR/2016-17 : 29.06.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. K.R. Santhosh Kumar,**
#04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.

*** Name of Work** : Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

*** Reference** : EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (20mm)

Sample Received on : 27.06.2016

Date of Testing : 29.06.2016

Total Wt. of Aggregates in gms= **5000**

AE-8

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS :383-1970 (RA- 2007)	
		Graded	Single Sized
40	100	100	100
20	97.50	95-100	85-100
10	28.50	25-55	0-20
4.75	6.50	0-10	0-5

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits

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Job No.: CTCE/BBMP/W.No.08/KRSK/STEEL/2016-17 29.06.2016

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer**, Kodigehalli Sub Division, BBMP, Bangalore.
Agency	:	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of the Work	:	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	:	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Date of Test	:	29.06.2016
Technical Reference	:	IS: 1786-2008

AE-8

1

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	10	0.62	513	556	13.30	O.K	O.K

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Job No.: CTCE/BBMP/W.No.08/KRSK/STEEL/2016-17 29.06.2016

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer**, Kodigehalli Sub Division, BBMP, Bangalore.
Agency	:	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of the Work	:	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	:	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Date of Test	:	29.06.2016
Technical Reference	:	IS: 1786-2008

AE-8

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm²	Tensile strength (Ultimate stress) N/mm²	Elongation percent gauge length		
1	16	1.58	520	563	13.45	O.K	O.K

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T-2377

Job No.: CTCE/BBMP/W.No.08/KRSK/CSR-06/076g/CUBE/2016-17 08.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. K.R. Santhosh Kumar,**
#04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.

*** Name of the work** : Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

*** Reference** : EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016

*** Sample ID** : Drain Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{20}

Compressive Strength as on : 28th day

Sample Received on : 08.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	11.07.2016	08.08.2016	8.152	478.3	21.26
2	11.07.2016	08.08.2016	8.235	490.3	21.79
3	11.07.2016	08.08.2016	8.315	510.2	22.68

* Information is furnished by the Customer/Representative

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Job No.: CTCE/BBMP/W.No.08/KRSK/CSR-06/076g/CUBE/2016-17 08.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. K.R. Santhosh Kumar,**
#04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.

*** Name of the work** : Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

*** Reference** : EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016

*** Sample ID** : Drain Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{20}

Compressive Strength as on : 28th day

Sample Received on : 08.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	11.07.2016	08.08.2016	8.128	489.9	21.77
2	11.07.2016	08.08.2016	8.290	502.2	22.32
3	11.07.2016	08.08.2016	8.332	516.3	22.95

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T-2377

Job No.: CTCE/BBMP/W.No.08/KRSK/CSR-06/076g/CUBE/2016-17 09.08.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. K.R. Santhosh Kumar,**
#04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.

*** Name of the work** : Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

*** Reference** : EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016

*** Sample ID** : Drain Covering Slab Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{20}

Compressive Strength as on : 28th day

Sample Received on : 09.08.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.07.2016	09.08.2016	8.132	474.9	21.11
2	12.07.2016	09.08.2016	8.290	483.9	21.51
3	12.07.2016	09.08.2016	8.389	493.6	21.94

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Job No.: CTCE/BBMP/W.No.08/KRSK/WMM/Gradation/2016-17 18.07.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Mr. K.R. Santhosh Kumar,**
#04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.

Name of Work : Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016

Date of Testing : 18.07.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8260**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	215	215	2.6	97.4	95-100
22.4	2485	2700	32.7	67.3	60-80
11.2	1285	3985	48.2	51.8	40-60
4.75	1105	5090	61.6	38.4	25-40
2.36	985	6075	73.5	26.5	15-30
0.600	900	6975	84.4	15.6	8-22
0.075	895	7870	95.3	4.7	0-8

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Job No.: CTCE/BBMP/W.No.08/KRSK/WMM/Gradation/2016-17 19.07.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.

Agency : **Mr. K.R. Santhosh Kumar,**
#04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.

Name of Work : Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016

Date of Testing : 19.07.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **7995**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	150	150	1.9	98.1	95-100
22.4	2505	2655	33.2	66.8	60-80
11.2	1270	3925	49.1	50.9	40-60
4.75	1115	5040	63.0	37.0	25-40
2.36	990	6030	75.4	24.6	15-30
0.600	865	6895	86.2	13.8	8-22
0.075	800	7695	96.2	3.8	0-8

AE-8

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Job No.: CTCE/BBMP/W.No.08/KRSK/WMM/AIV/2016-17 18.07.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of the Work	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	18.07.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	303	
4	Aggregate Impact value = percent fines	22.68	22.70	
	100* (W_2/W_1)%			22.69

A&B

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/W.No.08/KRSK/WMM/S-T/2016-17 18.07.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of Work	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	18.07.2016

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.85%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index **25.10%**

A&B

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/W.No.08/KRSK/SDBC/AIV/2016-17 28.07.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of the Work	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	28.07.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	302	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.11	21.15	21.13

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.08/KRSK/SDBC/Shape_T/2016-17 : 28.07.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	: **Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of Work	: Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	: EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 28.07.2016

Result : Flakiness Index = **12.35%**

Elongation Index = **13.52%**

Result : Combined Flakiness & Elongation index 25.87%

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.08/KRSK/SDBC/Stripping/2016-17 28.07.2016

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.**
Agency	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of the work	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	28.07.2016

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

AE-8

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.08/KRSK/SDBC/Sp_Wa/2016-17 28.07.2016

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
Agency	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
Name of the Work	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	28.07.2016

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2002	2005	2001	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1247	1250	1246	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2016	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	768	766	772	
6	Weight of oven dried aggregate	W_4 g	2005	1998	1999	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.611	2.608	2.589	2.603
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.645	2.671	2.655	2.657
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.90%	0.95%	0.78%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.08/KRSK/SDBC/Bitumen/2016-17 28.07.2016

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Kodigehalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K.R. Santhosh Kumar,** #04, 1st A Main, V. Pura, AVR Block, Virupakshapura Vidyaranyapura (P), Bangalore.
NAME OF THE WORK	Improvements to Roads and Drains at Bhadrappa Layout surroundings in Ward No.08, Kodigehalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/196/2015-16 Dated: 03.02.2016
SAMPLE I/D	Roads in Bhadrappa Layout
DATE OF TESTING	28.07.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475.5	473.5
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	24.5	26.50
7. Bitumen content in %	4.90	5.30
8. Average	**5.10**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	32.25	6.78	6.78	93.22	90-100
4.75	262.3	55.16	61.95	38.05	35-51
2.36	35.26	7.42	69.36	30.64	24-39
1.18	45.25	9.52	78.88	21.12	15-30
0.3	44.26	9.31	88.19	11.81	9-19
0.075	29.36	6.17	94.36	5.64	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	32.26	6.45	6.45	93.55	90-100
4.75	260.2	52.04	58.49	41.51	35-51
2.36	60.22	12.04	70.54	29.46	24-39
1.18	50.22	10.04	80.58	19.42	15-30
0.3	40.12	8.02	88.60	11.40	9-19
0.075	30.25	6.05	94.65	5.35	3-8

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